STA304

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required readings: errors of observation and reducing errors

what is an error of observation?

Recall the errors of non-observation: mainly classified as errors (difference between target and sampled populations) and (sampled unit cannot be found or is unable to answer). The result can be a .

An occurs when the sampled unit has been found and is able to respond, but the observation made is not . So the sample itself could be unbiased, but the observations themselves may not be.

The difficulty with errors that may occur (non-observation or obsevation) is to determine its impact on the results. This requires expertise in the topic under study and is not normally a statistical problem.

The book classifies blame for errors of observation as follows: ,
, , .

Most observation errors are related to getting information from humans.

the effect of the interviewer

- Humans are social animals…we like to please the interviewer, more so with one who is likeable.
- We also (subconciously or not) prefer interviewers we feel comfortable with according to social markers like sex, accent, etc.

Possible ways to minimize impact of errors due to interviewer effect:

- Training, protocol, scripts
- Randomization (optional section 11.2 "interpenetrating subsamples")

the effect of the respondent

- The respondent might misunderstand the question (often due to the unit of measurement or the definition of terms…the book refers to these as issues.)
- The question might be embarrassing.
- They simply might not know the correct answer.

Possible ways to minimize impact of errors due to respondent effect:

- Questionnaire design best practices (an enormous field of study)
- For sensitive questions: randomized response (optional section 11.4)

methods of data collection

- Personal interview
- Telephone interview
- Mailed survey
- Electronic survey
- Direct observation

other ways to improve quality of sampling data

- Data checking (exploratory data analysis)
- Rewards and incentives to interviewers and respondents.